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May 21, 1999

Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

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MAY 21 1999  
FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Re: The Boeing Company  
**Ex Parte**  
DA 98-2206  
WT Docket 99-87 /

Dear Ms. Salas:

On Thursday May 20, 1999, Sheldon R. Bentley of The Boeing Company (Boeing), and David A. Nall and Kelly Quinn of Squire, Sanders & Dempsey, LLP, counsel to Boeing met with Thomas Sugrue, Diane Cornell, Kathleen Ham, Ramona Melson, Josh Roland and Gary Michaels of the Wireless Bureau.

In that meeting, the parties discussed Boeing's position on the use of private wireless spectrum. The materials attached hereto were also distributed and discussed during the presentation.

Pursuant to section 1.1206 of the Commission's rules, one original and four copies of this letter and attachments are being filed with the Office of the Secretary.

Sincerely,



Kelly Quinn

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*Bratislava . Brussels . Budapest . Cleveland . Columbus . Hong Kong . Houston  
Jacksonville . Kyiv . London . Madrid . Miami . Moscow . New York . Phoenix . Prague . Taipei*

May 20, 1999

## **Boeing at FCC Wireless Bureau**

- 1. Boeing (and our Customers) Spectrum Use:**
  - Extensive frequencies in numerous parts of the spectrum**
  - Dictates efficient use, coordination, cooperation, internal policies**
  - Commercial and private services**
  - Integrates radios into manufacturing processes**
- 2. Boeing Spectrum Policy Advocacy Principles:**
  - Full disclosure,**
  - Allocation equity,**
  - Spectrum efficiency,**
  - Incumbent relocation reimbursement.**
- 3. On Auctions:**
  - Support for commercial (resellers) applications**
  - Oppose for "pure" private wireless applications**
  - Support efficiency-based license fees for private wireless applications**
- 4. On Role of FCC:**
  - See continuing need for spectrum management**
  - FCC is appropriate body**
  - Market economics should not replace public interest**
- 5. On (New) Spectrum Legislation ("Allocation Reform and Privatization Act")**
  - Support several coordinators approaches and will support more, if**
    - key provisions are modified (e.g. delete fees tied to auctions) and,**
    - "processes" are developed (e.g. quantification of 12 MHz)**
  - FCC should;**
    - Help Congress make more informed allocation (equity) decisions**
    - Define many kinds of "Private Wireless" and elaborate on regulatory criteria**
    - Establish long term solutions to address band congestion and spectrum equity**
- 6. DENY Nextel's Waiver Request:**
  - It fails to meet waiver standards,**
  - Private wireless users desperately need spectrum**
  - Private wireless users' (i.e. Boeing) rights should not be subservient to**
    - one commercial provider (Nextel) seeking**
    - a (regulatory) forced increased in market size**
    - and serve it with spectrum not obtained at auction**

May 20, 1999



VIA COURIER

Ms. Magalie R. Salas  
Secretary  
Federal Communications Commission  
445 Twelfth Street, S.W.  
TW-A325  
Washington, D.C. 20554

Re: DA 98-2206

Dear Ms. Salas:

In accordance with Section 1.1206 of the Commission's rules, The Boeing Company (Boeing) hereby respectfully submits this letter in the above-captioned proceeding to oppose an April 15, 1999 *ex parte* letter from Nextel Communications, Inc ("Nextel") regarding its requests for waiver of Sections 90.617 and 90.619 of the Commission's rules.<sup>1</sup> Specifically, Nextel requests waivers to convert 54 private land mobile radio service licenses to commercial mobile radio services (CMRS) authorizations for use in its 800 MHz specialized mobile radio (SMR) systems. Nextel's waiver requests are accompanied by 54 pending applications to assign the licenses to Nextel.

On October 28, 1998, the Wireless Telecommunications Bureau placed Nextel's waiver requests on public notice seeking comment from interested parties. Boeing was one of many commenters that urged the Commission to deny Nextel's request. While Boeing challenges the substance of Nextel's recent filing in its entirety, it does agree on a single point. The pleading cycle in this proceeding is complete, "and the applications are ripe for decision."<sup>2</sup> Accordingly, the Bureau is

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<sup>1</sup> 47 C.F.R. §§ 90.617, 90.619.

<sup>2</sup> *Ex parte* Letter to Ms. Magalie R. Salas, Secretary of the Federal Communications Commission from Lawrence R. Krevor, Senior Director -Government Affairs of Nextel Communications, Inc. dated April 15, 1999 at 1 ("*Nextel Ex parte*").

now charged with the responsibility of upholding the integrity of the Commission's intercategory sharing rules and denying Nextel's requests for waiver outright.

### I. The Proposed Transaction



Despite Nextel's attempts to convince the Bureau otherwise, neither the arm's length nature nor the voluntariness of the proposed assignments are relevant in this proceeding. Additionally, the interest of current eligible B/ILT licensees in selling their licenses to Nextel, and the determination of certain private wireless licensees that their internal communications needs can be met with Nextel's commercial service are equally inconsequential. The public policy purpose of the intercategory sharing rules is to preserve the much needed and rapidly dwindling private wireless spectrum for those eligible licensees that seek to use the channels for their intended purposes. Simply stated, to allow the assignment of these licenses to Nextel for the purposes of commercial use constitutes a blatant disregard of the Commission's rules and policies. Under the Commission's current rules, unused B/ILT channels are returned to the pool of B/ILT private wireless spectrum for reassignment to eligible licensees, thereby maintaining the amount of spectrum available for private use. To instead allow Nextel to "step into the shoes"<sup>3</sup> of an incumbent B/ILT licensee, and then to permit it to use the licenses for commercial purposes, not only raises Nextel's rights above that of the incumbent's, but also wholly violates the letter and purpose of the Commission's rules. Moreover, none of Nextel's smoke and mirror arguments can hide the simple fact that the sole issue for the Commission to determine in this proceeding is whether Nextel has met the standard for a waiver.

### II. Nextel's Applications Wholly Fail to Meet the Commission's Waiver Standard

Nextel has failed to demonstrate any unique circumstances which warrant a determination that it has no other reasonable alternatives than to modify these B/ILT licenses from private to commercial use. More importantly, because Nextel has failed to show that a waiver of the Commission's rules would serve either the public interest or the public policy objectives of the Commission's rules, the Bureau must now deny Nextel's requests for waiver. Nextel's *ex parte* filing would have the Commission believe that its desire to become more competitive in the CMRS marketplace is synonymous with being able to fairly compete. Nothing can be further from the truth. In the instant matter, Nextel makes an unambiguous grab for spectrum to gain a larger market share, and does so at the expense of both private wireless users that could use the licenses for their intended purposes, and commercial users that have gained their

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<sup>3</sup> *Nextel Ex parte* at 3.

spectrum through the Commission's competitive bidding procedures. There is nothing unique about the desire to acquire more spectrum if such acquisitions would make a company more competitive in the wireless marketplace. Yet, Nextel's request for waivers is entirely premised upon this proposition.



Moreover, there is nothing unique, or for that matter even surprising, about the position that Nextel currently finds itself in. Nextel was fully aware of the Commission's relocation requirements before it participated in the auction process. Further, it is not the responsibility of the Commission to elevate a single competitor above others by virtue of providing it with waivers that are tantamount to spectrum at deeply discounted, wholesale prices. Such an approach contravenes the public interest by holding Nextel to one set of relocation standards, while other auction participants are held to another. Nextel, like the competitors it faced at auction, should have formulated bids and market values based on the Commission's well established and publicized relocation rules. Granting Nextel additional spectrum to solve its relocation problems, without forcing it to bid on such spectrum in a competitive environment, will unfairly disadvantage other auction participants that are faced with the same or similar relocation obligations.

Allowing Nextel to gain these B/ILT licenses also further encroaches upon the already limited availability of such licenses for applicants that seek to use the spectrum for its intended purposes. Boeing strongly believes that spectrum that has not been made available for auction should continue to remain reserved for private wireless use. The licenses Nextel seeks to acquire have specifically been treated in this manner.

The dire need for the preservation of private mobile radio services (PMRS) has been brought to the Commission's attention by the Land Mobile Communications Council's (LMCC) Petition for Rulemaking which seeks an allocation of additional spectrum for the provision of PMRS. LMCC's petition demonstrates the lack of options available for business and industrial licensees, like Boeing, who require additional spectrum to operate their internal communications systems. The Commission must not continue to ignore the needs of the private land mobile community, and granting Nextel's request would clearly do so.

Contrary to Nextel's arguments, granting its requested relief will unquestionably diminish the availability of vacant spectrum for entities seeking to use it for private internal use systems. The rules envision that when B/ILT licenses are relinquished those licenses are returned to the pool for reassignment. If the Commission were to allow every incumbent that wished to assign its private wireless spectrum to an interested commercial provider searching for a spectrum bargain, such



a decision would clearly diminish the amount of spectrum available for private purposes, and will open the floodgates for trafficking of such licenses. Private wireless users have a valid fear that available spectrum is becoming more and more difficult to acquire. Because many private radio users, like Boeing, have unique needs that cannot be fulfilled by commercial service providers, they must have access to spectrum to support their day to day business needs. Congress itself recognized this fact when it exempted private internal radio services from the Commission's competitive bidding authority. Thus, Nextel's requests for waiver clearly do not serve the public interest.

### III. Precedent Does Not Justify the Grant of Nextel's Applications

The Commission's decision to grant Southern Company's request to waive section 90.629 of the Commission's rules can be distinguished from the instant matter. Nextel attempts to factually align itself with Southern because if the Commission had denied Southern's request to waive its construction requirements, Southern's licenses would have reverted to the B/ILT pool for reassignment. However, Southern, unlike Nextel, relied on the Commission's former intercategory sharing rule to convert those licenses from Business and I/LT channels to SMR use. <sup>4</sup>Moreover, in a footnote, granting Southern's request for waiver, the Commission noted that "any Business or I/LT channels acquired after March 17, 1996, the effective date of the rule change eliminating SMR use of Business and ILT channels, cannot be integrated into Southern's SMR network but must be used only to meet Southern's internal communications needs."<sup>5</sup> Accordingly, the Commission has clearly drawn a line between licenses that were converted to SMR use under the Commission's former rules, and the impermissible conversion of such licenses on a going forward basis.

### IV. Sound Public Policy Requires a Dismissal of Nextel's Requests for Waiver

As early as 1995, the Commission established a policy abolishing intercategory sharing between commercial and private operators.<sup>6</sup> It did so because it was

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<sup>4</sup> "In Re Southern Company Request for Waiver of Section 90.629 of the Commission's rules," *Memorandum Opinion and Order*, DA 98-2496 at ¶ 3 (December 4, 1998).

<sup>5</sup> *Id.* at fn.7.

<sup>6</sup> See "Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band," PR Docket 93-144,

May 20, 1999



concerned that "to allow SMR applications for the Pool Channels could cause a scarcity of frequencies for PRMS use."<sup>7</sup> It is this very public policy that prevents the Bureau from now granting Nextel's requests. Moreover, the statistics that Nextel itself points to in support of its requests for waivers--which show the currently authorized commercial use of the B/ILT channels--clearly demonstrate why the Commission needs to safeguard against the intercategory sharing of these channels. With so little spectrum available for legitimate private wireless use, the Commission cannot justify further reductions of this scarce resource.

V. Implementation of the Balanced Budget Act of 1997 Looms on the Horizon

The Bureau should not be swayed by Nextel's bravado. The impending implementation of the Commission's expanded auctions authority clearly presents issues for consideration. If indeed it is determined that certain B/ILT spectrum should be converted from private to commercial purposes then Nextel should be required to obtain such spectrum through the same means as its competitors, competitive bidding. Because the Commission has only recently released a *Notice of Proposed Rulemaking* seeking comment on the changes that the 1997 Balanced Budget Amendments will have on the Commission's auction authority, and because comments for that proceeding are not even due until July 2, 1999, it is premature to gauge what effect the statutory changes will have. However, if the Commission grants Nextel's requests at this juncture, it will have allowed Nextel to jump through a competitive loophole never envisioned by Congress. Boeing is prepared to argue the merits of preserving wireless spectrum for private users like itself in the appropriate policy making forum. But to grant Nextel's waivers before the Commission has had the opportunity to consider such arguments, allows Nextel to circumvent the Commission's rulemaking process. Instead, the Commission should deny Nextel's requests for waiver and reach its conclusions with regard to its auction authority.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sheldon R. Bentley'.

Sheldon R. Bentley  
Manager, Frequency Management Services  
The Boeing Company

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*First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rulemaking*, 11 FCC Rcd 1463 (1995) (800 MHz Order).

<sup>7</sup> *Id.* at 1537, ¶ 141.

# **Frequency Spectrum Issues**

**-- Inefficiency License Fees --**

**The Boeing Company**

**February 21, 1997**

**The Boeing Company**

FCC-REV10-1.DOC 2/21/97



# Summary of Boeing Perspective

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All spectrum should be subject to some fiscal incentive for efficient use


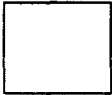
One way to begin is to classify all spectrum as either:

Third Party use (CMRS / Resale) & subject to Competitive Bidding (Auction) Incentives

-- or --

Private use (Private Radio) & subject to Efficiency Based (License Fee) Incentives



Spectrum Class		Allocation Process	Fiscal Incentives
	CMRS/Resale	Auctions (No License Fee)	Free Market (Bid Opportunity Costs)
	Private Radio (All Others)	License Fee (Efficiency Based & NOT Auction)	Fee Amount (Influence Technology Investments)

# Summary of Boeing Perspective

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Spectrum Management should be based on :



**EQUITY BETWEEN spectrum allocated to DIFFERENT USERS**

**EFFICIENCY WITHIN spectrum allocated to EACH CLASS OF USER**



**EQUITY BETWEEN each and every  and ** is principally a **POLITICAL PROCESS (Legislative)**

**EFFICIENCY WITHIN any ** is principally an **ECONOMIC INCENTIVIZING PROCESS (Regulatory)**

Spectrum Class		Allocation Process	Fiscal Incentives
	CMRS/Resale	Auctions (No License Fee)	Free Market (Bid Opportunity Costs)
	Private Radio (All Others)	License Fee (Efficiency Based & NOT Auction)	Fee Amount (Influence Technology Investments)

# Summary of Boeing Perspective

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## License Fees Should :

### For Licensees :

- Reward licensees who use spectrum efficiently
- Not be market based, i.e., at levels of Auctions, because

Licensees cannot realize spectrum opportunity costs, and, therefore, should not be expected to pay "Auction" prices

### For Government :

- Be pragmatically & equitably calculated, i.e., minimized regulation & complaints
- Be easily administered & enforceable -- Requires enabling Legislation & subsequent Regulation

### For Both :

- Have the support of licensees -- "self-implementing"
- Promote development & timely deployment of new and innovative radio services and technologies
- Promote the efficient and equitable use of the spectrum

# Summary of Boeing Perspective

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Market parameters AND system use MAY or MAY NOT mean spectral efficiency

License Fees Should :

- NOT be based on Market Parameters : Because :

Systems in Rural or Urban Areas<sup>1</sup>, or

Manufacturers and Businesses locate in labor markets for "employment" reasons as opposed to telecommunication "market" reasons

- NOT be based on Population<sup>2</sup> :

Coverage

The "coverage" for Private Radio is targeted to facilities, business routes, etc., and NOT the population "coverage" of a community

Density

Private Radio applications are independent of the population "coverage" and the population "density" of a community

- NOT be based on System Use<sup>3</sup> :

Hours per day

Certain critical business and manufacturing systems require only limited on-demand air-time (e.g., RF crane control units, man-down systems to meet OSHA requirements, etc.). Private Radio applications do not share the same objective of "maximum" loading of a commercial system

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<sup>1</sup> Using Market Based Spectrum Policy to Promote the Public Interest, Rosston & Steinberg, Jan 1997, p 19.; ITA memo, Jan 3, 1997, Mark E. Crosby to Gregory Simon, cc: Michelle Farquhar, p 4, footnote 4.; Draft Spectrum Efficiency Reform Act of 1997.

<sup>2</sup> PR Docket 92-235, p 62, Para 137

<sup>3</sup> For "Private Goods", Private Benefits =  $\neq$  (use) – BUT -- for "Public Goods", Public Benefits  $\neq$   $\neq$  (use) (i.e., no fire & no use is good public benefit)

# Summary of Boeing Perspective

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## License Fees Should :

(In Principle)

- Be based on efficiency of allocated spectrum

Fee =  $f$  (Spectrum Allocated/User)                      so    Fee  $\uparrow$  if  $f$  (  $\uparrow$  )

-- or --

Fee =  $g$  (# of Users/Spectrum Allocated)                      so    Fee  $\uparrow$  if  $g$  (  $\downarrow$  )

- A graduated fee structure should be
  - 1) Based on recommendations from User communities
  - 2) Challenged and tested for equity among the various services by a central oversight body, and
  - 3) Adopted into regulation by the FCC
- Inefficiency spectrum allocations and technologies should result in higher fees than efficient allocations and state-of-the-art technologies (Label as Inefficiency Fees)

The most efficient allocations and technologies possible should have a "Base" License Fee

Fees should not be so high as to discourage use of efficiency-enhancing state-of-the-art radio technology

Fees should be relevant within (EFFICIENCY WITHIN) each "pool", because like users and Industries face the same economics and opportunity cost externalities

# Summary of Boeing Perspective

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**For Most "Pools", License Fees Should :**

**(In Specific)**

- **Be based on<sup>4</sup>**

**1) Amount of Assigned Bandwidth**

**e.g.**

**For per channel bandwidths of 25 kHz a licensee could pay up to four times that of one using a 6.25 kHz channel bandwidth**

**2) System Coverage Area**

**Fees proportional to square miles of coverage on a site-by-site basis (but NOT CMRS wide service license areas such as MTAs, BTAs, etc.)**

**3) Use of Spectrum Efficient Technology**

**Fees proportional to efficiencies provided by technologies employed (e.g.: ACSB, CDMA, FDMA, F-TDMA, TDMA, etc.)**

**a) No. of channels per unit of spectrum**

**b) Amount of throughput per channel**

**c) Number of mobile units per channel**

**4) Exclusivity That Leads to Efficiency**

**If employment of spectrally efficient technologies requires license exclusivity to serve more users or use less spectrum (e.g., Trunking, Digital, etc.) fees should be proportional**

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<sup>4</sup> To achieve a given degree of reliability

# Summary of Boeing Perspective

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## Pragmatic and Political Issues :

- Will private radio users advocate Inefficient License Fees ?
  - 1) Some users will always just want to say "NO"
  - 2) Expect that private radio users will oppose Market Based Fees (Auction Prices)
  - 3) Opposing license fees based on efficiency will be politically difficult
  - 4) Expect that the enlightened and vocal will support Inefficiency License Fees  
PROVIDED the process is equitably structured and properly implemented



# Frequency Spectrum Issues

## Ex Parte Presentation

May 20, 1999



# The Boeing Company

**Consolidating Boeing, Rockwell's North American Aviation, and McDonnell Douglas**

**1999 Revenues** \$ 56.154 B

**Foreign Sales** \$ 26.530 M

## Employment

- ◆ Employees 231,000 (individuals)
- ◆ Subcontractors 10,666 (companies)

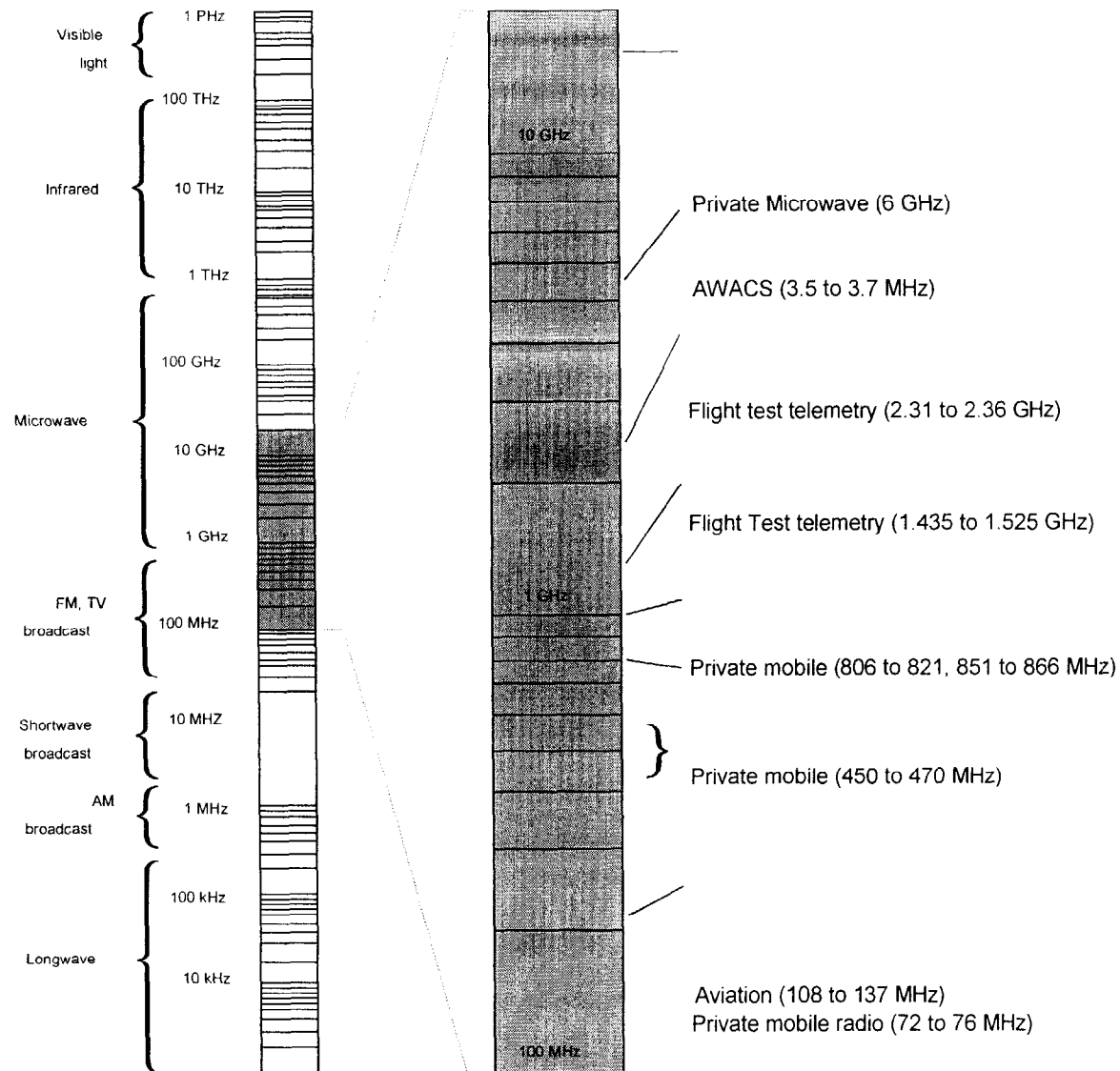
## Facilities

## Employees

## Operations / Programs

- |                  |         |  |
|------------------|---------|--|
| ◆ Washington     | 103,400 | Manufacturing (covers 1,300 Sq. Miles) |
| ◆ Alabama        | 2,600   | Space Systems                          |
| ◆ Arizona        | 5,300   | Helicopter, Gear Corp.                 |
| ◆ California     | 42,900  | C-17, MD-11, Missiles, GPS             |
| ◆ Florida        | 2,900   | Space Operations                       |
| ◆ Kansas         | 22,300  | Manufacturing                          |
| ◆ Missouri       | 22,800  | F-15, F-18                             |
| ◆ Oklahoma       | 2,500   | AF                                     |
| ◆ Pennsylvania   | 6,500   | Helicopter, Commercial Parts           |
| ◆ Texas          | 6,100   | Space Services, Mod. Maintenance       |
| ◆ Subcontractors |         | All 50 states                          |

# Major Boeing Spectrum Uses



Legend:

ISM - Industrial, Scientific, Medical

# **Boeing Spectrum Uses**

## **Boeing Does Not Use Spectrum to Provide Services to Third Parties**

- ◆ Interests Include “Airborne Information Systems” (AIS) and additional ventures like Digital Xpress, etc.

## **Boeing Uses Spectrum for Safety and Health Reasons:**

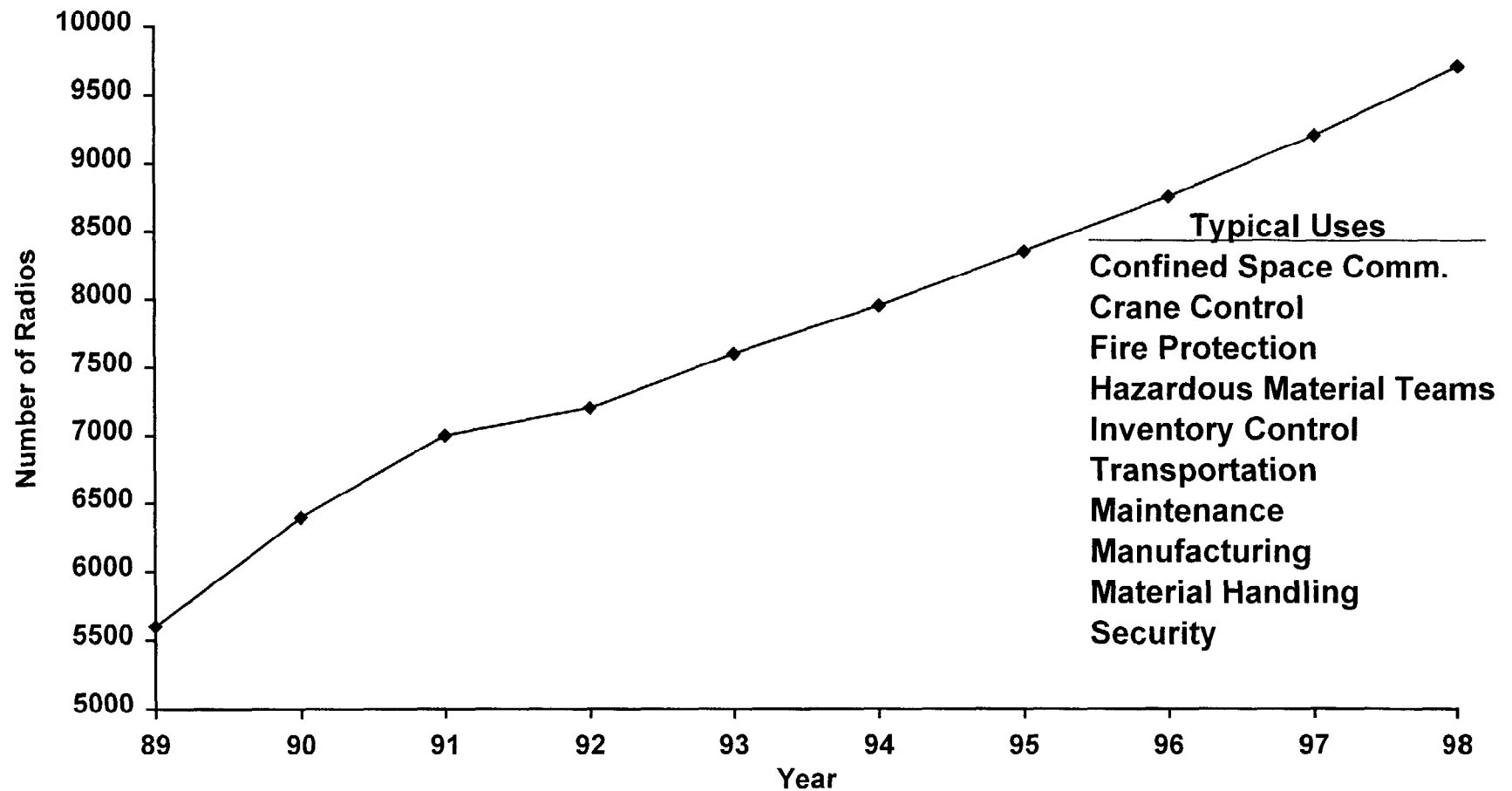
- ◆ Flight test telemetry
- ◆ Regulatory compliance -- Communication System for Confined Hazardous Areas (CSCHA), Hazardous Material (HazMat) response, “man-down” alarms
- ◆ Fire, security, alarms, emergency response, ties to municipalities for mutual aid

## **Boeing Uses Spectrum for Productivity Improvement:**

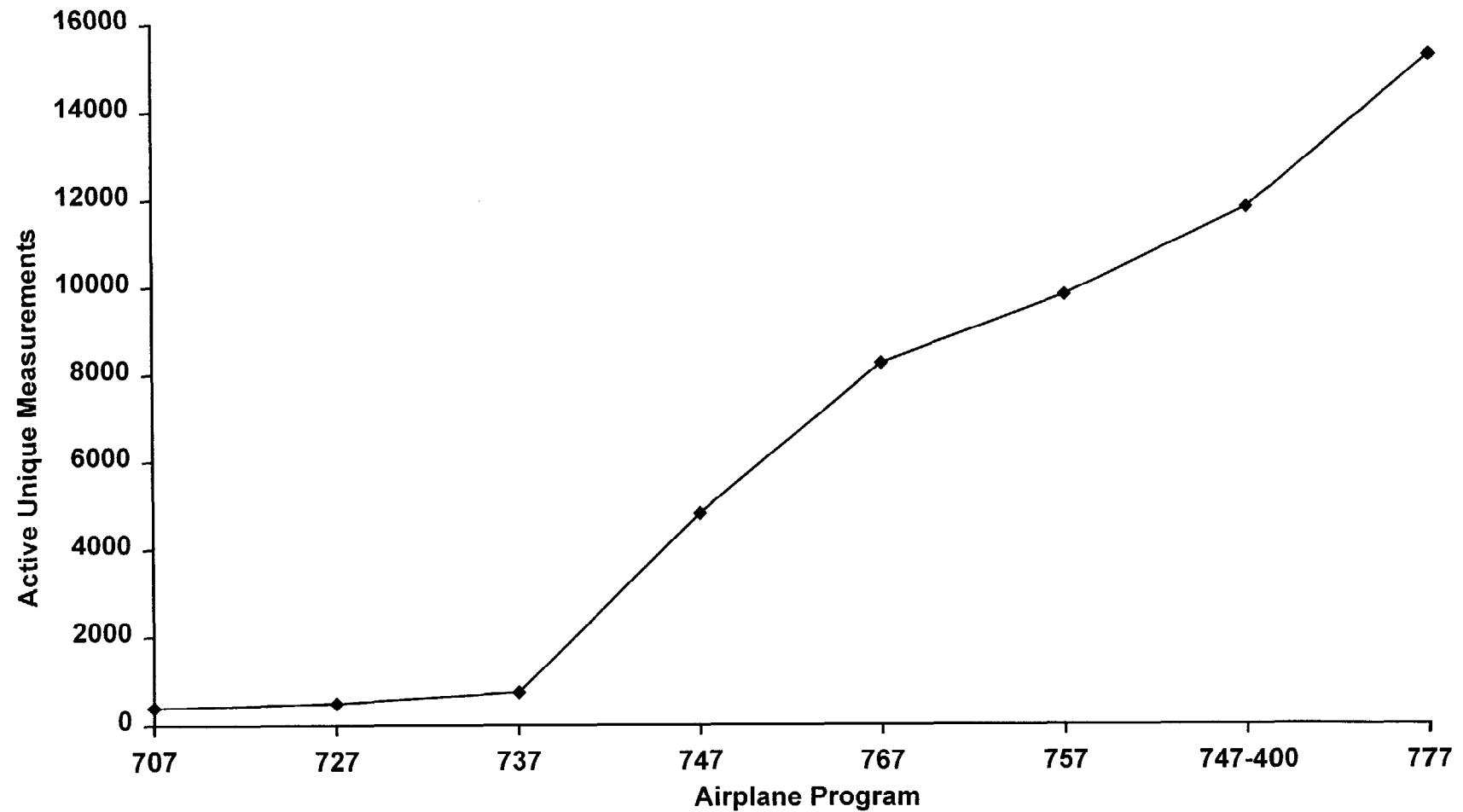
- ◆ Fabrication, machine programming, control and monitoring, cranes, material handling
- ◆ Data links, robotics, wireless local area networks (LANS), telecommunications backup, R & D
- ◆ Transportation

## **Boeing Has Consolidated All Frequency Licensing and Spectrum Planning Under One Organization (Frequency Management Services)**

# Puget Sound Area Radio Growth



# Flight Test Measurement Growth 1954 - 1995



# Future Telemetry Projections

## Boeing Foresees a Growing Demand for Spectrum Uses

### Bandwidth and Capacity Requirements Are Being Driven by New Technologies:

- ◆ Faster data buses and flight safety validation requirements
- ◆ Airframe and digital flight controls designed as integrated systems
- ◆ Real-time video needed to evaluate new structural materials
- ◆ Correlation of visual data and test sensors

### Bandwidth Need Is Greater Than Linear With Time

<u>Year</u>	<u>Airframe</u>	<u>Data Points</u>	<u>Bandwidth</u>
1954	707	300 (approx.)	200 kHz
1995	777	64,000	20+ MHz
(Projection) 2005	7X7	1,000,000	40+ MHz

# Spectrum Use By Boeing Customers

## Commercial Airplane Customers

- ◆ Communications Private Land Mobile, HF & VHF Air-Ground-Air and Air-Air Comm., ACARS, SATCOM
- ◆ Navigation GPS, Differential GPS, Radar, T/CAS, DME, Altimeters, Rescue Beacons, Transponders, Weather Radar, FANS
- ◆ Performance reporting HF/VHF Datalink
- ◆ Passenger services Cabin Service, In-Flight Telephones, Faxes, E-mail, Sky Radio, DBS-TV

## Defense Customers

- ◆ Military VLF, HF, VHF, & UHF Comm. Links, DGPS, DME, Telemetry, ILS, C-Band Remote Navigation System, Synthetic Aperture Radar, Microwave, Cross Band EMI testing
- ◆ NASA GLS, TT&C (TLM) Uplink, TDRS Downlink,

## Satellite Customers

- ◆ Direct Broadcast Satellite A/C Cabin Entertainment System
- ◆ Communications A/C Test Data, Sea Launch, Iridium
- ◆ Earth resource mapping
- ◆ Weather

**Few, If Any, Companies Have As Much Interest In Different Parts Of The Spectrum As Does Boeing And It's Customers.**



# **Spectrum Costs**

## **Radio Spectrum Is Not "FREE"**

### **Boeing's Costs Include:**

- ◆ Equipment investment (book value) \$108.M (1994 Dollars)
- ◆ Maintenance Exceeds \$2.M per year
- ◆ FCC license application fees, FCC regulatory fees, spectrum coordination fees, staff, coordinators and association/coalition memberships Exceeds \$1.M per year

### **These Costs Are Not Unique to Boeing**

### **Boeing and Its Customers Therefore Have Very Real Economic Incentives to Use Spectrum Efficiently:**

- ◆ To reduce costs and remain competitive
- ◆ To use existing spectrum allocations for new applications

# **Spectrum Allocation and Licensing**

**Congress Has Directed the FCC in Allocating and Licensing Radio Spectrum to:**

- ◆ Promote the public convenience, interest, and necessity
- ◆ Promote the development and timely deployment of new and innovative radio services and technologies
- ◆ Promote the efficient and intensive use of radio spectrum
- ◆ Recover, where appropriate, "a portion of the value of the public spectrum resource made available for commercial use"

# **Spectrum Realities**

**Industry Needs BOTH Private Radio and Commercial Radio Spectrum and Services to Satisfy Its Communications Needs**

**Commercial Mobile Radio Services Provide Effective and Efficient Solutions to Many of the Communications Needs of Industry**

- ◆ Cellular -- sales, some transportation
- ◆ Direct Broadcast Satellite (DBS) -- distribution of information
- ◆ In-flight phone -- business travelers

**Private Radio Often Provides the ONLY Solution to Many Communication Needs**

- ◆ Emergency services -- natural disasters, industrial accidents, emergency response, fire and security
- ◆ Safety services -- "man down" alarms
- ◆ Factory floor operations -- cranes, other machinery

## **Flight Test Telemetry -- Unique to U.S. Aerospace (Commercial and Military)**

# **Spectrum Realities**

**(continued)**

## **Some Needs Can Be Satisfied by Both Commercial Mobile and Private Radio Services, But With Varying Degrees of Cost and Efficiency**

- ◆ Cellular provides mobile communication, but is inflexible and suffers from inadequate coverage, security, and priority of services
- ◆ Commercial mobile services can be up to 40 times more expensive than private radio
- ◆ Commercial mobile radio service providers have not responded to the needs of industry for tailored wireless services in "thin" markets

## **Boeing Does NOT Treat All Radio Services as "Add-On" Capabilities**

- ◆ Boeing integrates radio services into its manufacturing processes and optimizes for efficiency and flow time.

# **Spectrum Economics**

**Auctions Should Only Be Utilized Where the Principal Use of the Spectrum Will Be to Provide Communications Services to Third Parties for Profit.**

**Auctions Are Appropriate for Such Services Because They Produce Revenues That Reflect the Value of the Business Being Entered, Rather Than the Cost Avoidance or Productivity Potential of the Spectrum Itself.**

**Private Users Will Bid Approximately One Tenth the Amount of Entrepreneurs Planning to Use Spectrum to Provide Service to Third Parties for Profit**

**If Private Radio Spectrum Is Auctioned, Users Will Be Compelled to:**

- ◆ pay economically unrealistic spectrum prices and be forced into a business (buying spectrum at auction) that is diversionary (non-core) and, thereby, damaging their competitiveness
- ◆ significantly change their operations, e.g., off-shore production
- ◆ attempt to recoup their "investment" by diverting resources and service to third parties

**Conversely, Communications Service Providers Who Do Not Pay Auction Prices, Will Have An Unfair Competitive Advantage Over Those Who Do.**

# **Spectrum Economics**

**(continued)**

**Competitive Bidding Would Preclude the Use of Private Radio Spectrum by Boeing because:**

**Initial PCS Auctions Produced \$8.733B (ten year licenses)  
(or \$6.50 per kHz per 1,000 sq. miles/year)<sup>1</sup>**

**Applying the Same Results to the License Period:**

- ◆ Boeing would increase costs by approximately \$40.M
- ◆ The aerospace industry would increase costs by approximately \$250.M<sup>2</sup>
- ◆ All U.S.-based manufacturers would increase costs by approximately \$6.B<sup>3</sup>

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<sup>1</sup> Nathan Associates, Inc.

<sup>2</sup> Aerospace Industries Association of America, Inc.

<sup>3</sup> Ibid.



# **Spectrum Economics**

**(continued)**

**If the FCC Wishes to Recover "a Portion of the Value of the Public Spectrum Resource", Efficiency-Based License Fees, Which Incentivize Efficient Use of the Spectrum, Are a Viable Alternative to Auctions for Private Radio Spectrum**

**If Properly Structured, License Fees Should:**

- ◆ Promote the development and timely deployment of new and innovative radio services and technologies
- ◆ Promote the efficient and intensive use of radio spectrum
- ◆ Not burden licensees who use spectrum efficiently

# **Spectrum Economics**

(continued)

## **License Fees Should Provide Licensees With an Incentive to Use Spectrum Efficiently**

- ◆ A graduated fee structure should be adopted
- ◆ Use of Inefficient technologies should result in higher license fees than efficient state-of-the-art technologies
- ◆ Efficiency can be objectively measured by a matrix of factors such as:

Per channel bandwidth	(Newer equipment)
Spectrum efficient emissions (TDMA/CDMA)	(Spectrally efficient technology)
Number of units per channel	(Channel density)
Duty cycle	(Use density)
- ◆ License fees should not be so high as to discourage use of efficiency-enhancing state-of-the-art of radio technology

# Summary of Boeing Perspective

## Spectrum Management Should Reflect the Differences in User Purposes

- ◆ Private use -- managed by coordination and cooperation – impacts “costs”  
or
- ◆ Commercial use -- managed by free market competition – impacts “revenue”

## Method of Value Recovery

Method	Private Use ("Private Radio")	Third Party Use (Resale)
◆ “Competitive Bidding”	Inappropriate	Appropriate (for all)
◆ License Fees	Appropriate (for all)	Inappropriate

# **Role of the FCC**

- ◆ **There Is a Continuing Need for Spectrum Management**
- ◆ **The FCC Is the Appropriate Body to Manage Spectrum**
- ◆ **Market Economics Should Not Replace the Public Interest**

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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OFFICE OF THE SECRETARY  
DA 98-2206

In the Matter of )  
 )  
Wireless Telecommunications Bureau )  
Seeks Comment on Nextel Communications, )  
Inc. Requests for Waiver )

To: Chief, Wireless Telecommunications Bureau

**COMMENTS OF THE BOEING COMPANY IN OPPOSITION  
TO THE REQUESTS FOR WAIVER**

The Boeing Company (Boeing), by its attorneys, hereby submits the following comments in response to the *Public Notice* released on October 28, 1998,<sup>1</sup> opposing the above-captioned requests for waiver.

**I. INTRODUCTION AND STATEMENT OF INTEREST.**

As the world's largest manufacturer of commercial aircraft and a leading defense contractor, Boeing heavily relies on its industrial private land mobile radio (PLMR) licenses. Like other industrial PLMR licensees, Boeing utilizes private radio spectrum for many specialized and critical communications needs that cannot be satisfied through the use of wireline or commercial mobile radio services (CMRS). Specifically, Boeing depends on private radio to provide internal safety and emergency services and to enhance the productivity of its manufacturing operations. For instance, Boeing uses private radio for: aeronautical and

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<sup>1</sup> *Public Notice*, Wireless Telecommunications Bureau Seeks Comment on Nextel Communications, Inc. Waiver Requests Associated with its Proposed Acquisition of Private Mobile Radio Service Business Channels, DA 98-2206 (rel. Oct. 28, 1998) (*Public Notice*).

industrial regulatory compliance, communication with personnel in confined and isolated areas, fire, security and emergency services, research and development, robotics, the control and monitoring of production, material handling, machine programming, inventory management and control, transportation, and internal communications services. Availability of PLMR spectrum has been increasingly restricted as more spectrum is allocated for commercial purposes. The Nextel request, if granted, would create a precedent for conversion of PLMR spectrum to CMRS purposes based simply on the expediency for parties selling and acquiring licenses. Accordingly, as a major user of private radio spectrum, Boeing strongly opposes the 54 requests for waiver sought by Nextel and urges the Commission to deny Nextel's requests.

## **II. NEXTEL FAILS TO MEET THE COMMISSION'S STANDARD FOR WAIVER OF ITS RULES.**

Nextel unequivocally fails to demonstrate that the Commission should grant a waiver of sections 90.617(c) and 90.619(c) of the Commission's rules. Moreover, Commission grant of Nextel's request will cause irreparable harm to Boeing and other PLMR licensees by creating precedent that will undoubtedly have a detrimental impact upon all current and future private wireless users.

Pursuant to section 90.151 of the Commission's rules, a request for waiver must include a "showing that unique circumstances are involved and that there is no reasonable alternative solution within existing rules."<sup>2</sup> Nextel's requests embody neither of these requirements. Additionally, as Nextel itself acknowledges, a waiver of the Commission's rules is only

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<sup>2</sup> 47 C.F.R. § 90.151.

appropriate where the request serves the public interest and will not undermine the public policy basis for the rule.<sup>3</sup> Nextel's requests for waiver fail to make this requisite showing.

Instead, in seeking these waivers, Nextel attempts to camouflage its attempt at improper conversion of private spectrum as due to a special circumstance arising from its lack of alternatives under the rules. Despite Nextel's contentions to the contrary, the grant of these waiver requests will not only undermine the public policy bases for sections 90.617(c) and 90.619(c), but will in fact swallow those rules in their entirety.

Simply stated, the only interest served by such conversion is Nextel's. In a transparent attempt to place a public interest gloss on its requests, Nextel argues that a potential use for these business pool channels is for the relocation of upper 200 channel incumbents in its economic areas.<sup>4</sup> In support of this argument, Nextel states "[m]any of these upper 200-channel incumbents are non-commercial PMRS operators that are eligible for and may prefer to be relocated on Business Pool or Industrial/Land Transportation (I/LT) Pool channels rather than lower SMR or General Category channels."<sup>5</sup> While this may be true, it is clear that Nextel's purpose is not simply to meet the needs of upper 200-channel incumbents for relocation. Even if this were Nextel's true and only purpose, Boeing would object to this approach to reassigning private radio spectrum because no Commission rule or policy grants a priority to relocated parties in the assignment of available spectrum. Nonetheless, in such a case, no waiver of the Commission's rules would be necessary if this spectrum were to remain in the PLMR category.

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<sup>3</sup> See Letter from Robert H. McNamara, Director, Regulatory Technology and Compliance, Nextel to Federal Communications Commission entitled "Request for Waiver of Section 90.169(b) Eligibility Restrictions to Permit Use of a Private Business Pool Channel for Commercial SMR Operations in U.S./Canada," July 21, 1998, at 3 (Nextel Letter).

<sup>4</sup> *Id.* at 3.

<sup>5</sup> *Id.*

To the contrary, however, Nextel clearly states that the Commission's rules should be waived to "permit the assignment of the subject PMRS Business Pool Channel[s] to Nextel for **commercial** operations . . . ."<sup>6</sup> Nextel offers no persuasive justification for this proposed conversion.

The Commission's policies to preserve spectrum for non-commercial and public safety purposes would be undermined by grant of a waiver in these circumstances. Nextel's argument that its request is consistent with Commission policy (*i.e.*, that since the channels it seeks to acquire are already licensed, its requests for acquisition and conversion do not pose a threat to the availability of unlicensed business radio channels<sup>7</sup>) must be perceived as self-serving and fallacious. The underlying purpose of sections 90.617(c) and 90.619(c) is to ensure that SMR service will not be authorized on these frequencies,<sup>8</sup> not to ensure that the licensees in the bands covered are free to assign those licenses to whom they see fit. The Commission did not differentiate between licensed and unlicensed frequencies in its rules nor provide for the discussion of voluntary transfer for commercial purposes because its prohibition was clear and inclusive.<sup>9</sup>

Accordingly, Nextel wholly fails to demonstrate sufficient grounds to support a grant of its requests for waiver. Specifically, all of Nextel's arguments to establish unique circumstances lack merit. In fact, the position Nextel finds itself in -- searching for additional spectrum to accommodate incumbents in its EAs and to achieve its goal to cover a substantial portion of the

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<sup>6</sup> *Id.* at 1, 2 (emphasis added).

<sup>7</sup> *Id.* at 3.

<sup>8</sup> 47 C.F.R. 90.617(c) and 90.619(c).

<sup>9</sup> Boeing also takes exception to the characterization that "Nextel frequently has been approached by PMRS licensees seeking to assign their spectrum to Nextel." Nextel Letter at 2. Boeing's experience in discussions with Nextel is that transfer of at least some of Boeing's private 800 MHz licenses as a *quid pro quo* for obtaining service from Nextel. Given such circumstances, the ability of Nextel to "squeeze" spectrum from its customers should not



U.S. population with its networks -- does not present unique circumstances and was readily apparent when Nextel became the winning bidder for 475 EA licenses for the upper 200 channels. Nextel knew then, as it knows now, that the Commission's rules do not permit it to find its solutions through the conversion of private wireless channels to commercial use. Similarly, Nextel makes no attempt to show the absence of reasonable alternatives, because in the context of "market-driven, voluntary relocation arrangements," such alternatives can always be negotiated. Rather than serve the public interest, the grant of these waivers will clearly impede it, and serve no other interest other than Nextel's.

### **III. GRANT OF NEXTEL'S WAIVER REQUEST WOULD BE COUNTER TO THE PUBLIC INTEREST AND WOULD HARM PRIVATE USERS.**

As the Commission is well aware, businesses like Boeing often have very special communications needs. Although some of a company's demands can obviously be served by wireline and CMRS service, there are many which cannot. To serve these needs there is only one solution, namely private radio. For example, factory floor operations require constant communications between employees and cannot efficiently and economically be served by such services. Thus, industrial users of private spectrum such as Boeing rely on their PLMR spectrum to conduct their day-to-day business operations. If the Commission permits Nextel's requests for waiver, it could potentially deprive future businesses from access to this important resource as the availability of private spectrum continues to be whittled away by commercial infringement. The effect of this loss of private radio spectrum for such businesses is incalculable. Boeing, as well as many current and future industrial users, needs these channels. PLMR users accustomed to sharing spectrum and working to achieve efficient usage are patiently seeking to license

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be mistaken for "economically beneficial arrangements" that do not undermine the public policy basis for the rule eliminating inter-category sharing.

spectrum and should not be disadvantaged in this quest solely to further Nextel's competitive business plans.

By allowing the conversion of these private wireless frequencies to commercial use, the Commission would further limit the amount of available business channels reserved to serve the legitimate private wireless needs of PLMRS licensees and applicants. Additionally, such a conversion provides Nextel with a slippery slope with which it may gain unrestricted access to channels for which it is currently ineligible under the Commission's policies and rules.<sup>10</sup> In sum, a grant of these requests for waiver would effectively negate the Commission's well-reasoned and carefully calculated decision to abolish the intercategory sharing rules, a decision enacted to prevent the encroachment of specialized mobile radio on spectrum allocated for PRMS purposes.<sup>11</sup> Accordingly, Boeing implores the Commission to deny Nextel's requests to convert these business pool channels to commercial use.

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<sup>10</sup> See 47 C.F.R. §§ 90.617 and 90.619.

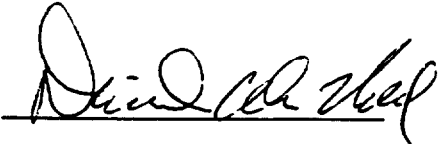
<sup>11</sup> Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket 93-144, *First Report and Order*, *Eighth Report and Order*, and *Second Further Notice of Proposed Rulemaking*, 11 FCC Rcd 1463, 1536-37 (1995) (*800 MHz Order*); see also *Intercategory Sharing of Private Mobile Radio Frequencies in 806-821/851-866 MHz Bands*, DA 95-741, *Order*, 10 FCC Rcd 7350 (1995) (Bureau placed a freeze on the filing of new applications for intercategory sharing on all private mobile radio service frequencies).

### III. CONCLUSION.

For all of the above reasons, Boeing strongly recommends that the Commission deny all 54 of Nextel's Request for Waiver and dismiss the underlying assignment applications.

Respectfully submitted,

**The Boeing Company**

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Its Counsel

November 25, 1998

**CERTIFICATE OF SERVICE**

I, Kelly A. Quinn, a member of the bar of the District of Columbia, do hereby certify that I have caused to be hand delivered, this 25<sup>h</sup> day of November, 1998, an original and 9 copies of the foregoing "Comments of The Boeing Company in Opposition to the Requests for Waiver" in DA 98-2206 to the following:

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Federal Communications Commission  
445 Twelfth Street, S.W., TW-A325  
Washington, D.C. 20554

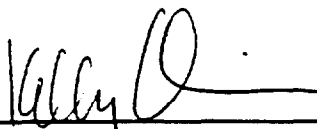
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I also hereby certify that I have caused to be served by first-class United States mail, this 25<sup>h</sup> day of November, 1998, a copy of the foregoing "Comments of The Boeing Company in Opposition to the Requests for Waiver" in DA 98-2206 to the following:

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